Amendments

Please amend this application with respect to the matters set forth below concerning the claims:

In the Claims:

Please rewrite Claims 22, 25~27, 34 and 36~41. The requested amendments to Claims 22, 25~27, 34 and 36~41 are shown below in the Listing of Claims (contained on pages 3~11 of this paper) in a marked-up version of those claims, as required by 37 CFR §1.121(c). Deletions are shown by strike-through, and additions are shown by underlining. A complete listing of all other claims indicating the status thereof is also shown on pages 3~11.

Listing of Claims

[including **(i)** amendments to Claims 22, 25~27, 34 and 36~41; and **(ii)** status of all claims; (Claims 20~22, 25~27 and 29~41 remain active)]

1 ~ 19. (cancelled).

20. (previously presented) An apparatus for analyzing a multi-component gas mixture, comprising:

(a) an array of four or more chemo/electro-active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials;

wherein at least four of the chemo/electro-active materials in the array comprise one of the following groups of four materials:

the group of chemo/electro-active materials comprising, respectively, $Ga_aTi_bZn_cO_x$, $Nb_aTi_bO_x$, $Ni_aZn_bO_x$, and SnO_2

the group of chemo/electro-active materials comprising, respectively, $Nb_aTi_bO_x$, $Ni_aZn_bO_x$, $Sb_aSn_bO_x$, and ZnO

the group of chemo/electro-active materials comprising, respectively, $Ni_aZn_bO_x$, $Sb_aSn_bO_x$, $Ta_aTi_bO_x$, and ZnO; and

the group of chemo/electro-active materials comprising, respectively, $Sb_aSn_bO_x$, $Ta_aTi_bO_x$, $Ti_aZn_bO_x$, and ZnO;

wherein a, b and c are each independently about 0.0005 to about 1; and

wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material;

(b) means for determining an individual electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture; and

(c) means for obtaining, from no information about the gas mixture other than the individual electrical response of the chemo/electro-active materials, a determination related to the presence or concentration of a component in the gas mixture.

21. (previously presented) An apparatus for analyzing a multi-component gas mixture, comprising:

(a) an array of six or more chemo/electro-active materials, each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials;

wherein at least six of the chemo/electro-active materials in the array comprise one of the following groups of six materials:

the group of chemo/electro-active materials comprising, respectively, $Al_aNi_bO_x$, $Cr_aTi_bO_x$, $Mn_aTi_bO_x$, $Nb_aTi_bZn_cO_x$, $Ta_aTi_bO_x$, and $Ti_aZn_bO_x$

the group of chemo/electro-active materials comprising, respectively, $Ga_aTi_bZn_cO_x$, $Nb_aTi_bO_x$, $Ni_aZn_bO_x$, $Sb_aSn_bO_x$, $Ta_aTi_bO_x$, and $Ti_aZn_bO_x$

the group of chemo/electro-active materials comprising, respectively, $Ga_aTi_bZn_cO_x$, $Nb_aTi_bO_x$, $Ni_aZn_bO_x$, SnO_2, $Ta_aTi_bO_x$, and $Ti_aZn_bO_x$

the group of chemo/electro-active materials comprising, respectively, $Nb_aTi_bO_x$, $Ni_aZn_bO_x$, $Sb_aSn_bO_x$, $Ta_aTi_bO_x$, $Ti_aZn_bO_x$, and ZnO;

wherein a, b and c are each independently about 0.0005 to about 1; and

wherein x is a number sufficient so that the oxygen present balances the charges of the other elements in the chemo/electro-active material;

(b) means for determining an individual electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture; and

(c) means for obtaining, from no information about the gas mixture other than the individual electrical response of the chemo/electro-active materials, a determination related to the presence or concentration of a component in the gas mixture.

22. (currently amended) An apparatus according to Claim 20 or 21 wherein a chemo/electro-active material further comprises ~~a frit additive~~(i) one or more additives to promote adhesion of a chemo/electro-active material to a substrate; or that alter the conductance, resistance or selectivity of a chemo/electro-active material; or that catalyze the oxidation of a gas of interest or promote the selectivity for a particular analyte gas; and/or (ii) one or more dopants that convert an n semiconductor to a p semiconductor, or vice versa.

23 ~ 24. (cancelled).

25. (currently amended) An apparatus according to Claim 20 or 21 ~~that~~ wherein component (c) determines the presence or concentration of a nitrogen oxide and a hydrocarbon in the multi-component gas mixture.

26. (currently amended) An apparatus according to Claim 20 or 21 wherein ~~the component~~ component (c) obtains a determination from gases in the gas mixture that are not separated.

27. (currently amended) An apparatus according to Claim 20 or 21 wherein ~~the~~ component (b) determines electrical responses of the chemo/electro-active materials ~~are determined~~ upon exposure to only the multi-component gas mixture.

28. (cancelled).

29. (previously presented) An apparatus according to Claim 20 or 21 wherein the multi-component gas mixture is emitted by a process, or is a product of a chemical reaction that is transmitted to a device, and wherein the apparatus further comprises means for utilizing the electrical responses for controlling the process or operation of the device.

30. (previously presented) A vehicle for transportation comprising an apparatus according to Claim 20 or 21.

31. (previously presented) Equipment for construction, maintenance or industrial operations comprising an apparatus according to Claim 20 or 21.

32. (previously presented) An apparatus according to Claim 20 or 21 further comprising heating means for separately heating each chemo/electro-active material.

33. (previously presented) An apparatus according to Claim 20 or 21 wherein each chemo/electro-active material is heated to the same temperature.

34. (currently amended) An apparatus according to Claim 20 or 21 wherein one or more chemo/electro-active materials ~~is heated to~~ has a different temperature than the other chemo/electro-active materials.

35. (previously presented) An apparatus according to Claim 20 or 21 wherein the chemo/electro-active materials are on a substrate made from a material selected from the group consisting of silicon, silicon carbide, silicon nitride, and alumina with a resistive dopant.

36. (currently amended) An apparatus according to Claim 20 or 21 wherein ~~the~~ component (c) obtains a determination as to the presence or concentration in the gas mixture ~~comprises~~ of an organo-phosphorus gas.

37. (currently amended) An apparatus according to Claim 20 or 21 which is characterized by a size such that it may be held in the human hand.

38. (currently amended) An ventilation system for a car or building comprising an apparatus according to Claim 20 or 21 ~~which is located in the ventilation system of a building or car~~.

39. (currently amended) An apparatus according to Claim 20 or 21 ~~that~~ wherein component (c) determines the presence or concentration of a nitrogen oxide in the multi-component gas mixture.

40. (currently amended) An apparatus according to Claim 20 or 21 ~~that~~ wherein component (c) determines the presence or concentration of a hydrocarbon in the multi-component gas mixture.

41. (currently amended) An apparatus according to Claim 20 or 21 ~~that~~ wherein component (c) determines the presence or concentration of ammonia in the multi-component gas mixture.